AMENDMENTS TO THE CLAIMS

Please amend the claims as shown below. A complete listing of all pending claims is presented.

1. (Original) An image processing apparatus for processing a moving picture photographed by a predetermined photographing device on the basis of access units, comprising:

high rate conversion means for executing high rate conversion processing for converting a rate of the access units of the moving picture from a current first rate into a second rate, which is higher than the first rate;

detection means for detecting, for each of the plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture; and

correction means for correcting, before or after the high rate conversion processing executed by the high rate conversion means, each pixel value forming each subject access unit of the moving picture based on at least one value corresponding to the subject access unit of the parameter values detected by the detection means.

2. (Original) The image processing apparatus according to claim 1, wherein the high rate conversion means executes the high rate conversion processing by using the parameter values detected by the detection means.

3. (Original) The image processing apparatus according to claim 1, wherein the first rate is the rate of the access units when the moving picture is photographed by the photographing device.

4. (Original) The image processing apparatus according to claim 1, wherein, for
each of the plurality of access units forming the moving picture, the detection means detects a
motion vector of at least one pixel of the pixels forming each subject access unit as the
parameter value.

5. (Original) The image processing apparatus according to claim 4, wherein, as at
least part of the high rate conversion processing, the high rate conversion means executes
motion-compensation frame interpolation processing by using the motion vectors detected by the
detection means.

6. (Original) The image processing apparatus according to claim 1, wherein the
detection means detects, as the parameter value, a shutter speed of the photographing device
when each of the plurality of access units forming the moving picture is photographed by the
photographing device.

7. (Original) The image processing apparatus according to claim 1, wherein, for
each of the plurality of access units forming the moving picture, the correction means sets a
subject pixel of the pixels forming the subject access unit as a focused pixel, the correction
means comprising:

filter characteristic conversion means for converting a characteristic of a low-pass
filter indicating the imaging blur in accordance with the value corresponding to the focused pixel
of said at least one parameter value detected by the detection means;

inverse filter generating means for generating an inverse filter of the low-pass
filter whose characteristic is converted by the filter characteristic conversion means; and

filtering means for correcting the pixel value of the focused pixel by applying the

inverse filter generated by the inverse filter generating means to a predetermined block

containing the focused pixel of the subject access unit.

8. (Original) The image processing apparatus according to claim 1, wherein, for

each of the plurality of access units forming the moving picture, the correction means sets a

subject pixel of the pixels forming the subject access unit as a focused pixel, the correction

means comprising:

filter characteristic conversion means for converting a characteristic of a low-pass

filter indicating the imaging blur in accordance with the value corresponding to the focused pixel

of said at least one parameter value detected by the detection means;

filtering means for applying the low-pass filter whose characteristic is converted

by the filter characteristic conversion means to a predetermined block containing the focused

pixel of the subject access unit to output a corrected pixel value of the focused pixel as a first

value;

subtraction means for computing a difference between a pixel value of the

focused pixel before being corrected and the first value output from the filtering means to output

the resulting difference as a second value; and

addition means for adding the second value output from the subtraction means to

the pixel value of the focused pixel before being corrected to output a resulting addition value as

the pixel value of the focused pixel after being corrected.

9. (Original) The image processing apparatus according to claim 1, wherein, for

each of the plurality of access units forming the moving picture, the correction means sets a

subject pixel of the pixels forming the subject access unit as a focused pixel, the correction

means comprising:

first delay means for sequentially receiving a first image signal corresponding to

a pixel group of the subject access unit in which pixels including the focused pixel are

continuously located in a predetermined direction and for delaying the received first image

signal by a first delay time corresponding to N pixels (N is an integer of one or greater) to output

a resulting second image signal;

second delay means for sequentially receiving the second image signal output

from the first delay means and for delaying the received second image signal by a second delay

time corresponding to M pixels (M is an integer of one or greater including N) to output a

resulting third image signal;

pixel value correcting means for correcting the pixel value of the focused pixel by

using the first image signal input into the first delay means, the second image signal output from

the first delay means and input into the second delay means, and the third image signal output

from the second delay means; and

delay time changing means for changing the first delay time of the first delay

means and the second delay time of the second delay means in accordance with a value

corresponding to the focused pixel of the parameter values detected by the detection means.

10. (Original) The image processing apparatus according to claim 1, wherein the

first rate is 30 Hz and the second rate is 120 Hz.

11. (Original) The image processing apparatus according to claim 1, wherein the

first rate is 60 Hz and the second rate is 120 Hz.

12. (Original) The image processing apparatus according to claim 1, wherein the first rate is 60 Hz and the second rate is 240 Hz.

13. (Original) The image processing apparatus according to claim 1, wherein the first rate is 50 Hz and the second rate is 100 Hz.

14. (Original) The image processing apparatus according to claim 1, wherein the first rate is 50 Hz and the second rate is 200 Hz.

15. (Original) An image processing method for an image processing apparatus for processing a moving picture photographed by a predetermined photographing device on the basis of access units, the image processing method comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the moving picture from a current first rate into a second rate, which is higher than the first rate;

a detection step of detecting, for each of the plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the moving picture based on at least one value corresponding to the subject access unit of the parameter values detected by processing in the detection step.

16. (Original) The image processing method according to claim 15, wherein the high rate conversion step is the step of executing the high rate conversion processing by using the parameter values detected by processing in the detection step.

17. (Original) The image processing method according to claim 15, wherein the first

rate is the rate of the access units when the moving picture is photographed by the

photographing device.

18. (Original) The image processing method according to claim 15, wherein, for

each of the plurality of access units forming the moving picture, the detection step includes

processing for detecting a motion vector of at least one pixel of the pixels forming each subject

access unit as the parameter value.

19. (Original) The image processing method according to claim 18, wherein the

high rate conversion step is the step of executing motion-compensation frame interpolation

processing as at least part of the high rate conversion processing by using the motion vectors

detected by processing in the detection step.

20. (Original) The image processing method according to claim 15, wherein the

detection step includes processing for detecting, as the parameter value, a shutter speed of the

photographing device when each of the plurality of access units forming the moving picture is

photographed by the photographing device.

21. (Currently Amended) The [information] image processing method according to

claim 15, wherein, for each of the plurality of access units forming the moving picture, the

correction step sets a subject pixel of the pixels forming the subject access unit as a focused

pixel, the steps for the focused pixel comprising:

a filter characteristic conversion step of converting a characteristic of a low-pass

filter indicating the imaging blur in accordance with the value corresponding to the focused pixel

of said at least one parameter value detected by processing in the detection step;

an inverse filter generating step of generating an inverse filter of the low-pass

filter whose characteristic is converted by processing in the filter characteristic conversion step;

and

a filtering step of correcting the pixel value of the focused pixel by applying the

inverse filter generated by processing in the inverse filter generating step to a predetermined

block containing the focused pixel of the subject access unit.

22. (Currently-Amended) The [information] image processing method according to

claim 15, wherein, for each of the plurality of access units forming the moving picture, the

correction step sets a subject pixel of the pixels forming the subject access unit as a focused

pixel, the steps for the focused pixel comprising:

a filter characteristic conversion step of converting a characteristic of a low-pass

filter indicating the imaging blur in accordance with the value corresponding to the focused pixel

of said at least one parameter value detected by processing in the detection step;

a filtering step of applying the low-pass filter whose characteristic is converted by

processing in the filter characteristic conversion step to a predetermined block containing the

focused pixel of the subject access unit to output a corrected pixel value of the focused pixel as a

first value;

a subtraction step of computing a difference between a pixel value of the focused

pixel before being corrected and the first value output as a processing result of the filtering step

to output the resulting difference as a second value; and

an addition step of adding the second value output as a result of a processing

result of the subtraction step to the pixel value of the focused pixel before being corrected to

output a resulting addition value as the pixel value of the focused pixel after being corrected.

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23. (Currently-Amended) The [information] image processing apparatus according to claim 15, wherein, for each of the plurality of access units forming the moving picture, the correction step sets a subject pixel of the pixels forming the subject access unit as a focused pixel, the steps for the focused pixel comprising:

a first delay step of sequentially receiving a first image signal corresponding to a pixel group of the subject access unit in which pixels including the focused pixel are continuously located in a predetermined direction and for delaying the received first image signal by a first delay time corresponding to N pixels (N is an integer of one or greater) to output a resulting second image signal;

a second delay step of sequentially receiving the second image signal output as a processing result of the first delay step and for delaying the received second image signal by a second delay time corresponding to M pixels (M is an integer of one or greater including N) to output a resulting third image signal;

a pixel value correcting step of correcting the pixel value of the focused pixel by using the first image signal input as a subject to be processed in the first delay step, the second image signal output as the processing result of the first delay step and input as a subject to be processed in the second delay step, and the third image signal output as the processing result of the second delay step; and

a delay time changing step of changing the first delay time in the first delay step and the second delay time in the second delay step in accordance with a value corresponding to the focused pixel of the parameter values detected by processing in the detection step.

24. (Original) The image processing method according to claim 15, wherein the first rate is 30 Hz and the second rate is 120 Hz.

25. (Original)   The image processing method according to claim 15, wherein the first rate is 60 Hz and the second rate is 120 Hz.

26. (Original) The image processing method according to claim 15, wherein the first rate is 60 Hz and the second rate is 240 Hz.

27. (Original) The image processing method according to claim 15, wherein the first rate is 50 Hz and the second rate is 100 Hz.

28. (Original) The image processing method according to claim 15, wherein the first rate is 50 Hz and the second rate is 200 Hz.

29. (Original) A recording medium recording thereon a program to be executed by a computer that controls image processing performed on a moving picture photographed by a predetermined photographing device on the basis of access units, the program comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the moving picture from a current first rate into a second rate, which is higher than the first rate;

a detection step of detecting, for each of the plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the moving picture based on at least one value corresponding to the subject access unit of the parameter values detected by processing in the detection step.

30. (Original) A program to be executed by a computer that controls image processing performed on a moving picture photographed by a predetermined photographing device on the basis of access units, the program comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the moving picture from a current first rate into a second rate, which is higher than the first rate;

a detection step of detecting, for each of the plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the moving picture based on at least one value corresponding to the subject access unit of the parameter values detected by processing in the detection step.

31. (Original) An image processing apparatus for performing processing on a moving picture photographed by a predetermined photographing device when receiving from a different image processing apparatus,

the moving picture, and

for each of a plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture,

the image processing apparatus comprising:

high rate conversion means for executing high rate conversion processing for

converting a rate of the access units of the moving picture supplied from the different image

processing apparatus from a current first rate into a second rate, which is higher than the first

rate; and

correction means for correcting, before or after the high rate conversion

processing executed by the high rate conversion means, each pixel value forming each subject

access unit of the moving picture supplied from the different image processing apparatus based

on at least one value corresponding to the subject access unit of the parameter values supplied

from the different image processing apparatus.

32. (Original) The image processing apparatus according to claim 31, wherein the

first rate is 30 Hz and the second rate is 120 Hz.

33. (Original) The image processing apparatus according to claim 31, wherein the

first rate is 60 Hz and the second rate is 120 Hz.

34. (Original) The image processing apparatus according to claim 31, wherein the

first rate is 60 Hz and the second rate is 240 Hz.

35. (Original) The image processing apparatus according to claim 31, wherein the

first rate is 50 Hz and the second rate is 100 Hz.

36. (Original) The image processing apparatus according to claim 1, wherein the first

rate is 50 Hz and the second rate is 200 Hz.

37. (Original) An image processing method for an image processing apparatus for

performing processing on a moving picture photographed by a predetermined photographing

device when receiving from a different image processing apparatus,

the moving picture, and

for each of a plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture,

the image processing method comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the moving picture supplied from the different image processing apparatus from a current first rate into a second rate, which is higher than the first rate; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the moving picture supplied from the different image processing apparatus based on at least one value corresponding to the subject access unit of the parameter values supplied from the different image processing apparatus.

38. (Original)   The image processing method according to claim 37, wherein the first rate is 30 Hz and the second rate is 120 Hz.

39. (Original)   The image processing method according to claim 37, wherein the first rate is 60 Hz and the second rate is 120 Hz.

40. (Original)   The image processing method according to claim 37, wherein the first rate is 60 Hz and the second rate is 240 Hz.

41. (Original) The image processing method according to claim 37, wherein the first rate is 50 Hz and the second rate is 100 Hz.

42. (Original) The image processing method according to claim 37, wherein the first rate is 50 Hz and the second rate is 200 Hz.

43. (Original) A recording medium recording thereon a program to be executed by a computer that controls image processing performed on a moving picture photographed by a predetermined photographing device when receiving,

the moving picture, and

for each of a plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture,

the program comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the supplied moving picture from a current first rate into a second rate, which is higher than the first rate; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the supplied moving picture based on at least one value corresponding to the subject access unit of the supplied parameter values.

44. (Original) A program to be executed by a computer that controls image processing performed on a moving picture photographed by a predetermined photographing device when receiving,

the moving picture, and

for each of a plurality of access units forming the moving picture, at least one parameter value representing a characteristic of imaging blur occurring when the photographing device photographs the moving picture,

the program comprising:

a high rate conversion step of executing high rate conversion processing for converting a rate of the access units of the supplied moving picture from a current first rate into a second rate, which is higher than the first rate; and

a correction step of correcting, before or after the high rate conversion processing executed in the high rate conversion step, each pixel value forming each subject access unit of the supplied moving picture based on at least one value corresponding to the subject access unit of the supplied parameter values.